

WHAT IS CLAIMED IS:

1. A hydrophilic polymeric nanoparticle comprising:
one or more three-dimensional binding sites, said binding sites being
5 complementary in shape to at least a portion of the surface of a target; and
one or more high affinity molecules chemically anchored at the surface within said
binding sites, said high affinity molecules being capable of a non-covalent
binding interaction with a site on said target.
- 10 2. A nanoparticle according to claim 1 wherein said high affinity molecule is natural or
synthetic and is selected from the group consisting of amino acids, peptides,
polypeptides, proteins, glycoproteins, saccharides, polysaccharides, carbohydrates,
lipopolysaccharides, nucleic acids, oligonucleic acids, porphyrins, substituted porphyrins,
15 polyanions, polycations, organic compounds, steroids, steroid derivatives, drugs,
enzymes, antibodies, antigens, cytokines, cellular receptors, cellular receptor fragments,
and active agents.
3. A nanoparticle according to claim 1 having a diameter of from about 5 nm to about
400 nm.
- 20 4. A nanoparticle according to claim 1 having a diameter of from about 5 nm to about
200 nm.
5. A nanoparticle according to claim 1 having a diameter of from about 5 nm to about
25 100 nm.
6. A nanoparticle according to claim 1 wherein the position of said high affinity
molecule in said binding site is stabilized by a polymer network.
- 30 7. A hydrophilic nanoparticle comprising a crosslinked three-dimensional polymeric
network, said polymeric network being formed from i) scaffolding building blocks and ii)
one or more high affinity building blocks comprising a high affinity molecule, said
polymeric network comprising a) one or more three-dimensional binding sites on its

surface, said binding sites being complementary in shape to at least a portion of the surface of a biomolecular target, and b) one or more high affinity molecules chemically anchored on the surface within said binding sites.

5 8. A hydrophilic nanoparticle comprising a crosslinked three-dimensional polymeric network comprising a) one or more three-dimensional binding sites on its surface, said binding sites being complementary in shape to at least a portion of the surface of a biomolecular target, and b) one or more high affinity molecules chemically anchored on the surface within said binding sites, said high affinity molecules being capable of a non-
10 covalent binding interaction with a site on said target.

9. A nanoparticle according to claim 8 wherein said high affinity molecule is natural or synthetic and is selected from the group consisting of amino acids, peptides, polypeptides, proteins, glycoproteins, saccharides, polysaccharides, carbohydrates,
15 lipopolysaccharides, nucleic acids, oligonucleic acids, porphyrins, substituted porphyrins, polyanions, polycations, organic compounds, steroids, steroid derivatives, drugs, enzymes, antibodies, antigens, cytokines, cellular receptors, cellular receptor fragments, and active agents.

20 10. A nanoparticle according to claim 8 having a diameter of from about 5 nm to about 400 nm.

11. A nanoparticle according to claim 8 having a diameter of from about 5 nm to about 200 nm.

25 12. A nanoparticle according to claim 8 having a diameter of from about 5 nm to about 100 nm.

13. A nanoparticle according to claim 7 wherein said high affinity molecule comprises
30 amino acids.

14. A nanoparticle according to claim 7 wherein said high affinity molecule comprises nucleic acids.

15. A nanoparticle according to claim 7 wherein said high affinity molecule comprises saccharides.
- 5 16. A nanoparticle according to claim 7 wherein said scaffolding building blocks comprise carbohydrates.